old work of Eisenmenger alone would have afforded him abundant material for a very long essay wherein every statement might have been founded upon fact.

In the chapters of Dr. Carus's work which are devoted to the "Dawn of a New Era" and "Early Christianity," the same complaint must be made, *i.e.*, he has not used existing materials. Who in these days would attempt to write about Gnosticism without giving a good account of the Pistis Sophia, or of the Book of Ieu, works from which the most valuable information on the subject is to be derived? It seems almost as if Dr. Carus had written his book to suit the pictures which he gives, without paying any attention to the system or arrangement of his work. In a treatise of such pretensions we should expect the account of the demonologies of the various Semitic nations to be kept together, and, as the devils of the Gnostics and early Christians were descendants of the denizens of the Egyptian underworld, they ought to have been described in a connected and systematic manner. It is doubtful how far the histories of the Inquisition and of the persecution of witches have any right to be in a book of this kind, but if they have, they should have been greatly shortened; in fact, Dr. Carus's work needs careful editing by a skilful but somewhat severe editor. As a picture book it is interesting enough, but as a scientific contribution to the history of an interesting and important subject it is, in our opinion, of little value.

SIR H. MAXWELL'S "MEMORIES OF THE MONTHS."

Memories of the Months. Second Series. By the Right Hon. Sir Herbert Maxwell, Bart. Pp. xv + 295. Illustrated. (London: E. Arnold, 1900.)

IT falls to the lot of but few among us to be all-round sportsmen, good naturalists, entertaining and versatile writers, and philosophers to boot; and yet all these varied and valuable accomplishments are the attributes of the author of the delightful and entertaining volume before us. A few years ago, as the author tells us in the preface, he published selections from his note-books of several seasons under the title quoted above, and these met with such a favourable reception that, at the request of numerous readers from both sides of the Atlantic, he has been induced to print a second series. And the public are decidedly the gainers by this resolve. For whether discussing the kind of salmon-fly best suited to any particular season or river, the utility or otherwise of birds or mammals commonly persecuted by the farmer and the gamekeeper, the kinds of shrubs and plants best suited to escape the depredations of rabbits, the ruthless slaughter of egrets for the sake of their so-called "osprey" plumes, or the accident by which the skeletons of the iguanodons of Bernissart were preserved for the delectation and wonderment of the present generation, he is equally at home, and equally free from any suspicion of dulness and pedantry.

Nothing, indeed, seems to come amiss to Sir Herbert in the matter of a text, and he has the rare faculty of making an extract from some abstruse scientific paper as full of interest as are his observations on the mammals, birds and fishes with which he has come in contact in the ordinary course of a country life or in his field sports.

Among the subjects to which the author has paid special attention is the so-called vole-plague, which wrought devastation some years ago over wide districts in Scotland. Of the committee appointed to investigate the causes of this invasion, and, if possible, to suggest remedies, he was appointed chairman. And he gives a graphic account of the scene which met the eye during the visits of the committee to the afflicted area, mentioning the extraordinary number of short-eared owls which flocked to the feast, and of their equally remarkable fecundity as its result. Lappwings, too, are birds which come in for a special share of his attention; and although he apparently considers that much harm has not been done thus far, yet he urges that shooting a bird at one season and taking its eggs at another, or even conducting both operations simultaneously, is a sure road to its eventual extermination. While deprecating any interference with the collecting of these plovers' eggs, he suggests that the slaughter of the birds themselves should be prohibited.

An enthusiastic angler, the author holds out hopes of the possible rehabilitation of the salmon in the upper reaches of the Thames, stating that even at the present day the condition of the water at the mouth of that river is such as to offer no barrier to the upward passage of the fish. But he points out that as there are now no salmon-rivers discharging in the neighbourhood of the Thames estuary, it is essential that young salmon must be turned down in that river itself, when there would be hope that some of them would return after their first excursion to the sea. From Thames salmon the transition is easy to the question as to whether *Salmo salar* really abstains from food while in fresh water. In regard to this latter point, Sir H. Maxwell states that the experience of many anglers is practically in accord with the results of the investigation carried on by the Scottish Fishery Board, as detailed in a "blue-book" published in 1898, namely, that salmon do, as a rule, fast during the period in question. Against this evidence is, however, advanced the undoubted fact "that salmon in fresh water do take and swallow worms, minnows, and similar objects." And the pertinent question is asked with what object they take them if not to eat. "The simplest solution is probably the true one—namely, that even a physiological fast is compatible with occasional and irregular impulses of appetite, which exactly corresponds with the well-known capriciousness of salmon in taking any lure."

But to follow the author further in his interesting discussions on fish and fishing would spin out this notice to an inordinate length. And it ought to be mentioned that the mole is one of the animals he considers should be protected rather than destroyed, as it appears to be of incalculable value in destroying the larvæ of "daddy-long-legs" and other equally noxious grubs. On the other hand, Sir Herbert has not a single good word to say for the rabbit, which he terms an "accursed" creature.

Hitherto we have referred to the author's zoological and sporting notes; but an equal degree of interest is taken by him in botany, and the mention of the extraordinary abundance of holly blossom in the home counties during the summer of 1899, coupled with his observations on

the remarkable "mimicry" of the plane by the sycamore, will serve to indicate the amount of attention bestowed by the author on botanical subjects. The incident related on page 87, narrating how a Scotch minister caused all the daffodils in his churchyard to be mown down because his wife regarded yellow as a vulgar colour, is a curious example of mid-century "æstheticism." To those fond of their gardens, the hints given as to the kinds of shrubs and herbaceous plants that flourish best in this country will be acceptable.

With the number of subjects on which the author touches it would not be surprising if he fell here and there into error. And yet there are but two passages which we have found occasion to criticise in this respect. In the first of these (page 89) we fail to realise how ice is likely to have had any share in the transport of the remains of the Bernissart iguanodons. The other is the statement (p. 46) that the nightjar, or goatsucker, is a relative of the swallow, whereas it is, of course, to the swifts that this bird is really allied. That the statement is not due to an accidental slip of the pen is proved by its repetition on page 233. These, however, are but trivial blemishes. And to whatever page he may turn, the reader can scarcely fail to be interested in what the author has to tell him. Whether, indeed, to while away an idle half hour at home, on a railway journey, or as a companion in the field, it would be difficult to find a more entertaining and instructive work of its kind. The epithet "delightful" suits it exactly. R. L.

OUR BOOK SHELF.

Cinématique et Mécanismes, Potentiel et Mécanique des Fluides. Cours Professé à la Sorbonne. Par H. Poincaré; redigé par A. Guillet. Pp. i + 385. (Paris: Carré et Naud, 1899.)

THIS book is edited from a course of lectures given at the Sorbonne. The first part deals with the kinematics of rigid bodies in two and in three dimensions, including the theories of roulettes, of acceleration centres and of relative motion; and concludes with a chapter on simple mechanisms. These are all well-worn topics, and afford little opportunity for novelty of treatment. In the few pages devoted to finite rotations we notice, however, an elegant method of investigating Rodrigues's formulæ which is, at all events, not current in this country. The exposition is marked throughout by the author's usual facility, and the illustrations are well chosen. A severe taste might perhaps take exception to the way in which analysis and geometry are continually mixed up in the proofs, but a course of lectures intended primarily for a special class of students is not to be judged by the same canons as a formal treatise.

The second part gives, in about 180 pages of large type, a rapid sketch of the theory of the potential, the attraction of ellipsoids, hydrostatics and hydrodynamics. A number of leading propositions are introduced, but the treatment is necessarily fragmentary, and in some instances it might be difficult to account for the precise selection which has been made. The brief chapter on hydrodynamics is disappointing. We notice, in particular, that Poisson's proof of Lagrange's velocity-potential theorem is reproduced without a word of warning as to its defects; and on p. 330 we have the following mysterious sentence: "On a discuté la question de savoir si un liquide visqueux est encore soumis au théorème de Lagrange; *les opinions sont partagés!*" Again, on p. 339, the remark: "Il est impossible de déterminer théoriquement le coefficient de contraction," might surely be qualified. It is a little strange to find the labours of Stokes and Kirchhoff on these points entirely ignored, even in an informal publication like the present. The absence throughout of all reference to authorities is, indeed, to be regretted; such references can, of course, be only sparingly made in actual lectures, but they might well be introduced in the process of editing.

It would be ungracious not to add that although, from the nature of the subject, the present treatise is not likely to excite such widespread interest as some of its predecessors, probably few readers will be found to lay it down without a fresh feeling of admiration for the energy and versatility of its author. H. L.

A Contents-Subject Index to General and Periodical Literature. By A. Cotgreave. Pp. xii + 744. (London: Elliot Stock, 1900.)

THIS is an attempt to bring together and classify in alphabetical order the noteworthy contents of periodicals and some other publications.

Several indexes to periodical literature are in existence, and are appreciated by people who have cultivated the habit of verifying references. Mr. Cotgreave has produced an index which will prove a handy and inexpensive guide, and an examination of it suggests that a similar work, prepared by a body of experts instead of one man, and issued periodically, would be of distinct value.

The index is not complete—nor does it pretend to be, but it is a praiseworthy attempt to classify a mass of heterogeneous articles, books and papers into subjects. Any one desirous to know a few contributions on any subject has only to refer to the index and he will find some to serve his purpose, though not always the best. We are only concerned with the scientific subjects, and have examined the entries from this point of view. The result is not very satisfactory, for some of the best contributions to science do not appear—at any rate where we should naturally expect to find them. Why should Barff's "Chemistry" and Reynolds' "Chemistry" be selected as containing accounts of the composition of air, while many other much better descriptions have been published? Why, again, should Johnston's "Chemistry of Common Life" be the only book given under the composition of air? Under physical geography there are six titles, three of which are unimportant; the only title under natural philosophy is Mitchell's "Orbs of Heaven"; an article on cellulose is classified under natural science; Balfour Stewart's Physics Primer is the only book cited under the title "laws of electricity"; Ashby's "Physiology" is the only reference given for a description of the metric system; the British Museum catalogue and introduction to the study of meteorites is not mentioned under meteorites; and many other similar cases could be given. We understand, of course, that the index is an eclectic one, and are willing to acknowledge that much work must have been expended in its preparation; but its limitations and imperfections must nevertheless be pointed out. If it is borne in mind that the book only contains a general survey of literature, it will be found of service.

Workshop Mathematics. By Frank Castle, M.I.M.E. Part i., pp. viii + 154. Part ii., pp. ix + 177. (London: Macmillan and Co., Ltd., 1900.)

PROF. PERRY'S persistent advocacy of a system of mathematical instruction adapted to modern requirements is bearing fruit in the shape of text-books, which will probably do more to induce teachers to adopt rational methods than the most convincing statement in favour of them. Mr. Castle has already prepared a book on "Practical Mathematics" which covers substantially all the subjects in the syllabus drawn up by Prof. Perry for